BRIEFER ARTICLES

DWARFING EFFECT OF TREES UPON NEIGHBORING PLANTS

The unfavorable effect of trees upon the growth of most plants rooted in the soil immediately about them is generally attributed to one or all of the following influences: (1) undue shade; (2) withdrawal of moisture from soil by the tree roots; (3) withdrawal of nutrient salts by the tree roots; (4) possible excretion of injurious substances into the soil by the tree roots.

Every observing farmer is well aware of the injury to most crops caused by the proximity of tree belts, hedges, or even of single large trees, and the loss caused in this way by trees is often considerable. Undoubtedly partial exclusion of light is an important factor. Cases in which fruit fails to mature may often depend upon this. The writer has found that the black raspberry (*Rubus occidentalis*) grew and flowered freely but failed to ripen fruit in a situation in which the bushes during the earlier half of the day received only one-twelfth to one-fifteenth of the total sunlight, although they were hardly at all shaded during the afternoon.

The present very rainy summer (1915) has afforded a suggestion as to the importance of the second of the factors previously mentioned, the withdrawal of moisture, in dwarfing plants growing under trees. The average rainfall in Boston for July is about 3.24 inches. This year the amount for July was in Boston 8.85 inches and in Cambridge 10.34 inches. The Boston record much exceeds that of any July precipitation during the 44 years for which the Weather Bureau has published a climatological summary of its observations.[1]

During the month of July of the present year the writer noticed that several species of perennial mesophytes which grew just north of and shaded by a belt of deciduous trees (wild cherries, ashes, and maples) were reaching unusual dimensions. Three most notable instances were

[1] No doubt the Cambridge rainfall for July of the present year is also the maximum for a long period. There is no readily accessible summary of total rainfall in Cambridge, month by month.

Aster novae-angliae, *Asclepias tuberosa*, and *Helianthus grosse-serratus*. None of these species was flourishing as well as did other individuals growing in open ground, but all were perhaps twice as tall as during an ordinary season and much more robust than usual. A plant of the moisture-loving *Chelone glabra*, which had for some years barely kept alive, grew luxuriantly and flowered freely.

On the other hand, the rather xerophytic *Sedum telephioides* and *Hedera Helix* showed no better growth than usual, and some other plants, such as *Saponaria officinalis* and *Oxalis corniculata*, showed little increase over their usual size. It would seem that the invariable dwarfing in ordinary seasons of the *Aster*, *Asclepias*, and *Helianthus* previously mentioned must be due mainly to abstraction of moisture from the soil by the roots of the trees. Doubtless many plants of agricultural importance are as sensitive to the effect of diminished water supply as are these three species.—J. Y. BERGEN, *Cambridge, Mass.*

STAMINATE FLOWERS IN ANEMONE

Anemone caroliniana is one of the most common of spring flowers in the vicinity of Grand Island, Nebraska. For several years I have noticed that in a large number of the flowers the pistils are lacking. In 1914 in one collection of 250 specimens, 190 were perfect, 50 had stamens only, and 10 had few or abortive pistils. There were none that had pistils only. The condition found is indicated in table I.

TABLE I

	STAMENS			PISTILS		
	Minimum	Maximum	Average	Minimum	Maximum	Average
190 normal flowers.	20	45	28	25	60	35
50 staminate flowers.....	7	55	28	.....	.....	.....
10 with few pistils .	10	52	40	10	20	16

In 1915 a collection of 133 specimens contained 55 staminate and 78 perfect flowers. A bouquet of especially fine large anemones was also examined. It contained 48 specimens, 46 of which were perfect, and in only 2 of which pistils were lacking. The average number of stamens